UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,816	10/10/2000	Tomas Nordstrom	192538US2PCT	9460

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EXAMINER
HOFFMAN, BRANDON S

ART UNIT	PAPER NUMBER
2136	15

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _15 June 2004_ .

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _24-46_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _24-46_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5) ☐ Notice of Informal Patent Application (PTO-152)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .   6) ☐ Other: .

DETAILED ACTION

1.   Applicant's appeals brief, filed June 15, 2004, with respect to the rejection(s)of

claim(s) 24-46 under 103(a) have been fully considered and are persuasive. Therefore,

the rejection has been withdrawn. However, upon further consideration, a new

ground(s) of rejection is made in view of Kloker in view Isaksson et al.

2.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

Claim Rejections - 35 USC § 103

3.   Claims 24-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kloker (U.S. Patent No. 4,539,684) in view of Isaksson et al. (WIPO 9503656 A1).

    Regarding claims 24, 32, and 37, Kloker teaches a method/system/scrambler of

scrambling user data prior to transmission, the method comprising:

- Combining user data with frame synchronization data to define scrambled data

  (fig. 3, ref. num 26, 28, and "Input Data Sequence"); and

- Transmitting the scrambled data to the receiver (col. 3, line 57 through col. 4, line

  46).

    Kloker does not teach in a multi-carrier transmission system in which

synchronization frame data is periodically transmitted from a transmitter to a receiver to

measure transmission channel characteristics.

Isaksson et al. teaches in a multi-carrier transmission system in which synchronization frame data is periodically transmitted from a transmitter to a receiver to measure transmission channel characteristics (claim 1 and abstract).

Regarding claims 28, 33, and 41, Kloker teaches a method/system/descrambler of descrambling user data prior to transmission, the method comprising:

- Receiving the scrambled data from the transmitter (col. 3, line 57 through col. 4, line 46); and

- Combining the scrambled data with frame synchronization data (fig. 4, ref. num 42, 46, and 48).

Kloker does not teach in a multi-carrier transmission system in which synchronization frame data is periodically transmitted from a transmitter to a receiver to measure transmission channel characteristics.

Isaksson et al. teaches in a multi-carrier transmission system in which synchronization frame data is periodically transmitted from a transmitter to a receiver to measure transmission channel characteristics (claim 1 and abstract).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine a multi-carrier transmission system in which synchronization frame data is periodically transmitted from a transmitter to a receiver to measure transmission channel characteristics, as taught by Isaksson et al., with the

method/system/scrambler/descrambler of Kloker. It would have been obvious for such

modifications because the system of Kloker reduces the transmission bit stream by

combining the user data bits with the synchronization bits. When you combine that with

the multi-carrier transmission system of Isaksson et al., one in the art would be

motivated to provide faster data transmission by reducing the transmission bit stream of

the data provided to customers.

Regarding claims 25, 29, 38, and 42, the combination of Kloker in view of

Isaksson et al. teaches the combiner means has a XOR function (see fig. 3, ref. num 28

of Kloker).

Regarding claims 26, 30, 39, and 43, the combination of Kloker in view of

Isaksson et al. teaches the frame synchronization data is pseudo random (see page 5,

lines 23-35 of Isaksson et al.).

Regarding claims 27, 31, 40, and 44, the examiner takes Official Notice that the

combiner means are adapted to combine said user data with the two most significant

bits of a synchronization frame.

It would have been obvious to one of ordinary skill in the art, at the time the

invention was made, to combine said combiner means is adapted to combine said user

data with the two most significant bits of a synchronization frame with the

method/system/scrambler/descrambler of Kloker/Isaksson et al. It would have been

obvious for such modifications because correlated data, data that has similar (or near similar) values for several transmission periods, would change the most by scrambling the two most significant bits. The difference between two binary '8' (**00001000**), for example, look quite different when EXCLUSIVE-ORed with the two most significant bits, the first binary '8' may become a binary '72' (**01001000**) and the second binary '8' may become a binary '136' (**10001000**). The opposite would be to EXCLUSIVE-OR the least significant bits. Again, the first binary '8' may become a binary '10' (**00001010**) and the second binary '8' may become a binary '11' (**00001011**). In summary, EXCLUSIVE-ORing the two most significant bits provides the most amount of uncorrelated data without having to EXCLUSIVE-OR the whole data string, which takes extra processing time in an already processor extensive procedure.

Regarding claims 34 and 45, the examiner takes Official Notice that the multi-carrier transmission system employs DMT.

Digital Multi Tone is commonly used in DSL to break up a telephone (tone) signal into smaller pieces and send them smaller pieces at the same time over different frequencies. This is very similar to Orthogonal Frequency Division Multiplexing, which breaks up a radio signal into smaller pieces for transmission at different frequencies.

Regarding claims 35 and 46, the combination of Kloker in view of Isaksson et al. teaches the multi-carrier transmission system employs OFDM (see page 3, line 29 through page 4, line 14 of Isaksson et al.).

Regarding claim 36, the combination of Kloker in view of Isaksson et al. teaches
a means for transmitting frame synchronization data from said data scrambler to said
data descrambler (see claim 1 and abstract of Isaksson et al.).

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Brandon Hoffman whose telephone number is 703-305-
4662. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for
the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should
you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

BH

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